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NOV 07 2016

*ORC*  
EPA Region 10  
Office of the Regional Administrator

November 2, 2016

**Via Certified Mail - Return Receipt Requested**

Managing Agent  
APM Terminals Pacific Ltd.  
1675 Lincoln Ave.  
Tacoma, WA 98421

**Via Certified Mail - Return Receipt Requested**

Managing Agent  
APM Terminals Tacoma LLC  
1675 Lincoln Ave.  
Tacoma, WA 98421

Re: **NOTICE OF INTENT TO SUE UNDER THE CLEAN WATER ACT AND  
REQUEST FOR COPY OF STORMWATER POLLUTION PREVENTION  
PLAN**

Dear Managing Agent:

We represent Puget Soundkeeper Alliance (Soundkeeper), 130 Nickerson St., #107, Seattle, WA 98109, (206) 297-7002. Any response or correspondence related to this matter should be directed to us at the letterhead address. This letter is to provide you with sixty days notice of Soundkeeper's intent to file a citizen suit against APM Terminals Pacific Ltd. (APM) under section 505 of the Clean Water Act ("CWA"), 33 USC § 1365, for the violations described below. This letter is also a request for a copy of the complete and current stormwater pollution prevention plan ("SWPPP") required by APM's National Pollution Discharge Elimination System ("NPDES") permit.

APM was granted coverage on January 1, 2010 under the Washington Industrial Stormwater General Permit ("IGSP") issued by the Washington State Department of Ecology ("Ecology") on October 21, 2009, effective January 1, 2010, modified May 16, 2012, effective July 1, 2012, and set to expire on January 1, 2015, under NPDES Permit No. WAR-000307 (the "2010 Permit"). Ecology granted subsequent coverage under the current iteration of the ISGP, issued by Ecology on December 3, 2014, effective January 2, 2015, and set to expire on December 31, 2019 (the "2015 Permit") and maintains the same permit number, WAR-000307.

APM has violated and continues to violate the CWA (see Sections 301 and 402 of the CWA, 33 USC §§ 1311 and 1342) and the terms and conditions of the 2010 Permit and 2015 Permit (collectively, "Permits") with respect to operations of, and discharges of stormwater

and pollutants from its facility located at or about 1675 Lincoln Ave, Tacoma, WA 98241 (the "facility") as described herein, to the Sitcum Waterway, part of Commencement Bay and the Puget Sound. The facility subject to this notice includes any contiguous or adjacent properties owned or operated by APM.

## **I. COMPLIANCE WITH STANDARDS.**

### **A. Violations of Water Quality Standards.**

Condition S10.A of the Permits prohibits discharges that cause or contribute to violations of water quality standards. Water quality standards are the foundation of the CWA and Washington's efforts to protect clean water. In particular, water quality standards represent the U.S. Environmental Protection Agency ("EPA") and Ecology's determination, based on scientific studies, of the thresholds at which pollution starts to cause significant adverse effects on fish or other beneficial uses. For each water body in Washington, Ecology designates the "beneficial uses" that must be protected through the adoption of water quality standards.

A discharger must comply with both narrative and numeric criteria for water quality standards. WAC 173-201A-010; WAC 173-201A-510 ("No waste discharge permit can be issued that causes or contributes to a violation of water quality criteria, except as provided for in this chapter."). Narrative water quality standards provide legal mandates that supplement the numeric criteria. Furthermore, the narrative water quality standard applies with equal force even if Ecology has established a numeric water quality standard. Specifically, Condition S10.A of the Permits requires that APM's discharges not cause or contribute to a violation of Washington State water quality standards.

APM discharges to the Sitcum Waterway via a stormwater conveyance system, comprising collection and conveyance facilities, such as catch basins and pipes which then discharges to Commencement Bay in the Puget Sound. APM discharges stormwater that contains elevated levels of copper, zinc, and total suspended solids ("TSS") as indicated in the table of benchmark exceedances below. These discharges cause and/or contribute to violations of water quality standards for copper and zinc in the Sitcum Waterway and Commencement Bay and have occurred each and every day during the last five years on which there was 0.1 inches or more of precipitation, and continue to occur. These water quality standards include those set forth in WAC 173-201A-210(e), 240(3) and 260(2)(a). Precipitation data from that time period is appended to this notice of intent to sue and identifies these days.

**Table 1 – Benchmark Exceedances**

| Quarter in which sample collected (monitoring point) | TSS (Benchmark 30 mg/L) | Copper Concentration (Benchmark 14 ug/L) | Zinc (Benchmark 117 ug/L) |
|--|-------------------------|--|---------------------------|
| 1 <sup>st</sup> Quarter 2013                         |                         | <b>31.4</b>                              |                           |

|   |  |             |            |
|---|--|-------------|------------|
| (B)*                                      |  |             |            |
| 2 <sup>nd</sup> Quarter<br>2013<br>(A13)* |  | <b>31.4</b> |            |
| 2 <sup>nd</sup> Quarter<br>2013<br>(B)    |  | <b>27</b>   |            |
| 2 <sup>nd</sup> Quarter<br>2013<br>(C)*   |  | <b>34.4</b> |            |
| 3 <sup>rd</sup> Quarter<br>2013<br>(A13)  |  | <b>23.5</b> |            |
| 3 <sup>rd</sup> Quarter<br>2013<br>(B)    |  | <b>19.2</b> | <b>145</b> |
| 3 <sup>rd</sup> Quarter<br>2013<br>(C)    |  | <b>69.5</b> |            |
| 4 <sup>th</sup> Quarter 2013<br>(A13)     |  | <b>24.5</b> |            |
| 4 <sup>th</sup> Quarter 2013<br>(B)       |  | <b>30</b>   |            |
| 4 <sup>th</sup> Quarter 2013<br>(C)       |  | <b>19.5</b> |            |
| 1 <sup>st</sup> Quarter 2014<br>(A13)     |  | <b>25.6</b> | <b>191</b> |
| 1 <sup>st</sup> Quarter 2014<br>(B)       |  | <b>67.8</b> | <b>720</b> |
| 1 <sup>st</sup> Quarter 2014<br>(C)       |  | <b>66.3</b> |            |
| 2 <sup>nd</sup> Quarter<br>2014<br>(B)    |  | <b>14.1</b> |            |
| 2 <sup>nd</sup> Quarter<br>2014<br>(C)    |  | <b>70</b>   |            |
| 3 <sup>rd</sup> Quarter<br>2014<br>(A13)  |  | <b>23.5</b> |            |
| 3 <sup>rd</sup> Quarter<br>2014<br>(B)    |  | <b>19.2</b> | <b>145</b> |
| 3 <sup>rd</sup> Quarter<br>2014<br>(C)    |  | <b>69.5</b> |            |

|  |             |             |            |
|--|-------------|-------------|------------|
| 4 <sup>th</sup> Quarter 2014<br>(C)      |             | <b>55.1</b> |            |
| 2 <sup>nd</sup> Quarter<br>2015<br>(A13) | <b>41.7</b> | <b>37</b>   | <b>173</b> |
| 2 <sup>nd</sup> Quarter<br>2015<br>(B)   |             | <b>52</b>   | <b>400</b> |
| 2 <sup>nd</sup> Quarter<br>2015<br>(C)   |             | <b>170</b>  |            |
| 3 <sup>rd</sup> Quarter<br>2015<br>(A)   |             | <b>47.3</b> | <b>205</b> |
| 3 <sup>rd</sup> Quarter<br>2015<br>(B)   | <b>41.9</b> | <b>64.7</b> | <b>620</b> |
| 3 <sup>rd</sup> Quarter<br>2015<br>(C)   | <b>53.3</b> | <b>62</b>   |            |
| 4 <sup>th</sup> Quarter 2015<br>(A13)    |             | <b>38.7</b> | <b>262</b> |
| 4 <sup>th</sup> Quarter 2015<br>(B)      | <b>34.4</b> | <b>21.8</b> | <b>175</b> |
| 4 <sup>th</sup> Quarter 2015<br>(C)      | <b>62.4</b> | <b>33.3</b> |            |
| 1 <sup>st</sup> Quarter 2016<br>(A13)    |             | <b>29.6</b> |            |
| 1 <sup>st</sup> Quarter 2016<br>(C)      |             | <b>17.6</b> |            |
| 2 <sup>nd</sup> Quarter<br>2016<br>(A13) |             | <b>50.6</b> | <b>253</b> |
| 2 <sup>nd</sup> Quarter<br>2016<br>(B)   |             | <b>20.7</b> |            |
| 2 <sup>nd</sup> Quarter<br>2016<br>(C)   |             | <b>22.4</b> |            |

\*(A13), (B), and (C) are designations for Outfalls A13, B, and C.

Additionally, these discharges are causing or contributing to violations of sediment quality standards as set forth in WAC 173-204-320(2)(f) for the following pollutants: 1,2,4-Trichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, Dibenzo[a,h]anthracene, 2-Methylnaphthalene, 2-Methylphenol, Di-N-Octyl Phthalate, 4-Methylphenol, Pentachlorophenol, Hexachlorobenzene, Hexachlorobutadiene, Acenaphthene, Anthracene,

Arsenic, Bis(2-Ethylhexyl) Phthalate, Benz[a]anthracene, Benzo[a]pyrene, Benzoic Acid, Benzyl Alcohol, Benzo[g,h,i]perylene, Butyl benzyl phthalate, Cadmium, Chromium, Chrysene, Copper, Diethyl phthalate, Dibenzofuran, Dibutyl phthalate, Dimethyl phthalate, Fluoranthene, Fluorene, High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAH), Indeno(1,2,3-c,d)pyrene, Lead, Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAH), Mercury, Naphthalene, N-Nitrosodiphenylamine, PCB, Phenanthrene, Phenol, Pyrene, Silver, Benzofluoranthenes, Total (b+k+j), Zinc, and Sediment Bioassay.

## **B. Compliance with Standards.**

Condition S10.C of the Permits requires APM to apply all known and reasonable methods of prevention, control and treatment ("AKART") to all discharges, including preparation and implementation of an adequate SWPPP and best management practices ("BMPs"). APM has violated and continues to violate these conditions by failing to apply AKART to its discharges or to implement an adequate SWPPP and BMPs as evidenced by the elevated levels of pollutants in its discharge indicated in the table above and as described below in this notice of intent to sue.

Condition S1.A of the Permits requires that all discharges and activities authorized be consistent with the terms and conditions of the Permits. APM has violated these conditions by discharging and acting inconsistently with the conditions of the Permits as described in this Notice of Intent to Sue.

## **II. STORMWATER POLLUTION PREVENTION PLAN VIOLATIONS.**

Condition S3.A.1 of the Permits requires APM to develop and implement a SWPPP as specified. Condition S3.A.2 of the Permits require the SWPPP to specify BMPs necessary to provide AKART and ensure that discharges do not cause or contribute to violations of water quality standards. On information and belief, APM has violated these requirements of the Permits each and every day during the last five years and continues to violate them as it has failed to prepare and/or implement a SWPPP that includes AKART BMPs and BMPs necessary to comply with state water quality standards.

Condition S3.A of the Permits requires APM to have and implement a SWPPP that is consistent with permit requirements, fully implemented as directed by permit conditions, and updated as necessary to maintain compliance with permit conditions. On information and belief, APM has violated these requirements of the Permits each and every day during the last five years and continues to violate them because its SWPPP is not consistent with permit requirements, has not been fully implemented and has not been updated as necessary.

The SWPPP fails to satisfy the requirements of Condition S3 of the Permits because it does not adequately describe BMPs. Condition S3.B.4 of the Permits requires that the SWPPP include a description of the BMPs that are necessary for the facility to eliminate or reduce the potential to contaminate stormwater. Condition S3.A.3 of the Permits requires that the SWPPP include BMPs consistent with approved stormwater technical manuals or document how stormwater BMPs included in the SWPPP are demonstratively equivalent to



the practices contained in the approved stormwater technical manuals, including the proper selection, implementation, and maintenance of all applicable and appropriate BMPs. APM's SWPPP does not comply with these requirements because it does not adequately describe BMPs and does not include BMPs consistent with approved stormwater technical manuals nor does it include BMPs that are demonstratively equivalent to such BMPs with documentation of BMP adequacy.

APM's SWPPP fails to satisfy the requirements of Condition S3.B.2 of the Permits because it fails to include a facility assessment as mandated. The SWPPP fails to include an adequate facility assessment because it does not describe the industrial activities conducted at the site, the general layout of the facility including buildings and storage of raw materials, the flow of goods and materials through the facility, regular business hours and seasonal variations in business hours or in industrial activities as required.

APM's SWPPP fails to satisfy the requirements of Condition S3.B.1 of the Permits because it does not include a site map that identifies significant features, the stormwater drainage and discharge structures, the stormwater drainage areas for each stormwater discharge point off-site, a unique identifying number for each discharge point, each sampling location with a unique identifying number, paved areas and buildings, areas of pollutant contact associated with specific industrial activities, conditionally approved non-stormwater discharges, surface water locations, areas of existing and potential soil erosion, vehicle maintenance areas, and lands and waters adjacent to the site that may be helpful in identifying discharge points or drainage routes.

APM's SWPPP fails to comply with Condition S3.B.2.b of the Permits because it does not include an inventory of industrial activities that identifies all areas associated with industrial activities that have been or may potentially be sources of pollutants as required. The SWPPP does not identify all areas associated with loading and unloading of dry bulk materials or liquids, outdoor storage of materials or products, outdoor manufacturing and processing, onsite dust or particulate generating processes, on-site waste treatment, storage, or disposal, vehicle and equipment fueling, maintenance, and/or cleaning, roofs or other surfaces exposed to air emissions from a manufacturing building or a process area, and roofs or other surfaces composed of materials that may be mobilized by stormwater as required by these conditions.

APM's SWPPP does not comply with Condition S3.B.2.c of the Permits because it does not include an adequate inventory of materials. The SWPPP does not include an inventory of materials that lists the types of materials handled at the site that potentially may be exposed to precipitation or runoff and that could result in stormwater pollution, a short narrative for material describing the potential for the pollutants to be present in stormwater discharge that is updated when data becomes available to verify the presence or absence of the pollutants, a narrative description of any potential sources of pollutants from past activities, materials and spills that were previously handled, treated, stored, or disposed of in a manner to allow ongoing exposure to stormwater as required. The SWPPP does not include the method and location of on-site storage or disposal of such materials and a list of significant spills and significant leaks of toxic or hazardous pollutants as these permit conditions require.

APM's SWPPP does not comply with Condition S3.B.3 of the Permits because it does not identify specific individuals by name or title whose responsibilities include SWPPP development, implementation, maintenance, and modification.

Condition S3.B.4 of the 2010 Permit requires that permittees include in their SWPPPs and implement certain mandatory BMPs no later than July 1, 2010 unless site conditions render the BMP unnecessary, infeasible, or an alternative and equally effective BMP is provided. APM is in violation of this requirement because it has failed to include in its SWPPP and implement the mandatory BMPs of the 2010 Permit.

Condition S3.B.4 of the 2015 Permit requires that permittees include in their SWPPPs and implement certain mandatory BMPs and that the permittee explain in detail how and where the selected BMPs will be implemented. APM is in violation of this requirement because it has failed to include in its SWPPP and implement the mandatory BMPs of the 2015 Permit and has failed to explain in detail how and where these BMPs will be implemented.

APM's SWPPP does not comply with Condition S3.B.4.b.i of the Permits because it does not include required operational source control BMPs in the following categories: good housekeeping (including definition of ongoing maintenance and cleanup of areas that may contribute pollutants to stormwater discharges, and a schedule/frequency for each housekeeping task); preventive maintenance (including BMPs to inspect and maintain stormwater drainage, source controls, treatment systems, and plant equipment and systems, and the schedule/frequency for each task); spill prevention and emergency cleanup plan (including BMPs to prevent spills that can contaminate stormwater, for material handling procedures, storage requirements, cleanup equipment and procedures, and spill logs); employee training (including an overview of what is in the SWPPP, how employees make a difference in complying with the SWPPP, spill response procedures, good housekeeping, maintenance requirements, and material management practices, how training will be conducted, the frequency/schedule of training, and a log of the dates on which specific employees received training); inspections and recordkeeping (including documentation of procedures to ensure compliance with permit requirements for inspections and recordkeeping, including identification of personnel who conduct inspections, provision of a tracking or follow-up procedure to ensure that a report is prepared and appropriate action taken in response to visual monitoring, definition of how APM will comply with signature and record retention requirements, and certification of compliance with the SWPPP and Permits).

APM's SWPPP does not comply with Condition S3.B.4.b.i.7 of the Permits because it does not include measures to identify and eliminate the discharge of process wastewater, domestic wastewater, noncontact cooling water, and other illicit discharges to stormwater sewers, or to surface waters and ground waters of the state.

APM's SWPPP does not comply with Condition S3.B.4.b.ii of the Permits because it does not include required structural source control BMPs to minimize the exposure of manufacturing, processing, and material storage areas to rain, snow, snowmelt, and runoff.

APM's SWPPP does not comply with Condition S3.B.4.b.iii of the Permits because it does not include treatment BMPs as required.

APM's SWPPP fails to comply with Condition S3.B.4.b.v of the Permits because it does not include BMPs to prevent the erosion of soils or other earthen materials and prevent off-site sedimentation and violations of water quality standards.

APM's SWPPP fails to satisfy the requirements of Condition S3.B.5 Permits because it fails to include a stormwater sampling plan as required. The SWPPP does not include a sampling plan that identifies points of discharge to surface waters, storm sewers, or discrete ground water infiltration locations, documents why each discharge point is not sampled, identifies each sampling point by its unique identifying number, identifies staff responsible for conducting stormwater sampling, specifies procedures for sampling collection and handling, specifies procedures for sending samples to the a laboratory, identifies parameters for analysis, holding times and preservatives, laboratory quantization levels, and analytical methods, and that specifies the procedure for submitting the results to Ecology.

### **III. MONITORING AND REPORTING VIOLATIONS.**

#### **A. Failure to Collect Quarterly Samples.**

Condition S4.B of the Permits requires APM to collect a sample of its stormwater discharge once during every calendar quarter. Conditions S3.B.5.b and S4.B.2.c of the Permits require APM to collect stormwater samples at each distinct point of discharge offsite except for substantially identical outfalls when documented in the SWPPP, in which case only one of the substantially identical outfalls must be sampled. These conditions set forth sample collection criteria, but require the collection of a sample even if the criteria cannot be met.

APM violated these requirements by failing to collect stormwater samples at any of its discharge points during the third quarter of 2012 and failing to collect stormwater samples from Outfall A13 during the first quarter of 2015.

#### **B. Failure to Analyze Quarterly Samples.**

Condition S5.A.1, Table 2, Condition S6.C.2.a, and Table 7 of the Permits require APM to analyze stormwater samples collected quarterly for turbidity, pH, total copper, total zinc, and TSS. Condition S4.B.4.h.6 allows APM to suspend sampling for one or more parameters for a period of three years based on consistent attainment of benchmark values when eight consecutive quarterly samples demonstrate a reported value equal to or less than the benchmark value. Per Permit Condition S.4.B.4.h.6.b.i, for the purposes of tallying "consecutive quarterly samples," any quarter in which APM did not collect a sample but should have resets the tally of quarterly samples to zero.

APM is violating these conditions by failing to analyze stormwater samples from Outfall A13 for turbidity each and every quarter since the third quarter of 2013.



**C. Failure to Timely Submit Discharge Monitoring Reports.**

Condition S9.A of the Permits requires APM to use DMR forms provided or approved by Ecology to summarize, report and submit monitoring data to Ecology. For each monitoring period (calendar quarter) a DMR must be completed and submitted to Ecology not later than 45 days after the end of the monitoring period. APM has violated these conditions by failing to submit a DMR within the time prescribed for the fourth quarter of 2011, first quarter of 2012, second quarter of 2012, fourth quarter of 2012, first quarter of 2013, third quarter of 2013, fourth quarter of 2013, first quarter of 2014, second quarter of 2014, third quarter of 2014, and the fourth quarter of 2014.

**D. Failure to Comply with Visual Monitoring Requirements.**

Condition S7.A of the Permits requires that monthly visual inspection be conducted at the facility by qualified personnel. Each inspection is to include observations made at stormwater sampling locations and areas where stormwater associated with industrial activity is discharged, observations for the presence of floating materials, visible oil sheen, discoloration, turbidity, odor, etc. in the stormwater discharges, observations for the presence of illicit discharges, a verification that the descriptions of potential pollutant sources required by the permit are accurate, a verification that the site map in the SWPPP reflects current conditions, and an assessment of all BMPs that have been implemented (noting the effectiveness of the BMPs inspected, the locations of BMPs that need maintenance, the reason maintenance is needed and a schedule for maintenance, and locations where additional or different BMPs are needed).

Condition S7.C of the Permits requires that APM record the results of each inspection in an inspection report or checklist that is maintained on-site and that documents the observations, verifications, and assessments required. The report/checklist must include the time and date of the inspection, the locations inspected, a statement that, in the judgment of the person conducting the inspection and the responsible corporate officer, the facility is either in compliance or out of compliance with the SWPPP and the Permits, a summary report and schedule of implementation of the remedial actions that APM plans to take if the site inspection indicates that the facility is out of compliance, the name, title, signature and certification of the person conducting the facility inspection, and a certification and signature of the responsible corporate officer or a duly authorized representative.

APM is in violation of these requirements of Condition S7 of the Permits because, during the last five years, it has failed to conduct each of the requisite visual monitoring and inspections, failed to prepare and maintain the requisite inspection reports or checklists, and failed to make the requisite certifications and summaries.

**E. Failure to Comply with Storm Drain Solids Sampling and Reporting Requirements**

Condition S6.C.2.d of the 2015 Permit requires that permittees who discharge to Puget Sound Sediment Cleanup Sites remove accumulated solids from storm drain lines owned or

controlled by the permittee at least once prior to October 1, 2016. Condition S6.C.2.e of the 2015 Permit requires permittees sample and analyze storm drain solids in accordance with Table 8 of the 2015 Permit at least once prior to October 1, 2016. Condition S6.C.2.f of the 2015 Permit requires that all storm drain solids sampling data shall be reported to Ecology on a Solids Monitoring Report (SMR) no later than the DMR due date for the reporting period in which the solids were sampled, in accordance with Condition S9.A of the 2015 Permit.

APM is in violation of these Conditions by failing to sample and analyze its storm drain solids at least once prior to October 1, 2016. APM is also in violation of these Conditions for failing to timely submit an SMR to Ecology after completing line jetting activities sometime in the first or second quarter of 2016.

#### **IV. CORRECTIVE ACTION VIOLATIONS.**

##### **A. Violations of the Level One Requirements of the Permits.**

Condition S8.B of the Permits requires APM take specified actions, called a "Level One Corrective Action," each time quarterly stormwater sample results exceed a benchmark value or are outside the benchmark range.

As described by Condition S8.B of the Permits, a Level One Corrective Action requires APM: (1) review the SWPPP for the facility and ensure that it fully complies with Condition S3 of the Permits and contains the correct BMPs from the applicable Stormwater Management Manual; (2) make appropriate revisions to the SWPPP to include additional operational source control BMPs with the goal of achieving the applicable benchmark values in future discharges and sign and certify the revised SWPPP in accordance with Condition S3.A.6 of the Permits; and (3) summarize the Level One Corrective Action in the Annual Report required under Condition S9.B of the Permits. Condition S8.B.3 of the Permits requires APM implement the revised SWPPP as soon as possible, and no later than the DMR due date for the quarter the benchmark was exceeded.

Condition S5.A and Table 2 of the Permits establish the following benchmarks: turbidity 25 NTU; pH 5 – 9 SU; total copper 14 µg/L; and total zinc 117 µg/L. Condition S6.C.2.a and Table 7 of the Permits establish the following additional benchmark that is applicable to APM: TSS 30 mg/L.

APM has violated the requirements of the Permits described above by failing to conduct a Level One Corrective Action in accordance with permit conditions, including the required review, revision and certification of the SWPPP, the required implementation of additional BMPs, and the required summarization in the annual report each time since January 1, 2010, its quarterly stormwater sampling results were greater than a benchmark or outside the benchmark ranges, including the benchmark exceedances listed in Table 1 above.

##### **B. Violations of the Level Two Requirements of the Permits.**

Condition S8.C of the Permits requires APM take specified actions, called a “Level Two Corrective Action,” each time quarterly stormwater sample results exceed an applicable benchmark value or are outside the benchmark range for any two quarters during a calendar year.

As described by Condition S8.C of the Permits, a Level Two Corrective Action requires that APM: (1) review the SWPPP for the facility and ensure that it fully complies with Condition S3 of the Permits; (2) make appropriate revisions to the SWPPP to include additional structural source control BMPs with the goal of achieving the applicable benchmark value(s) in future discharges and sign and certify the revised SWPPP in accordance with Condition S3.A.6 of the Permits; and (3) summarize the Level Two Corrective Action (planned or taken) in the Annual Report required under Condition S9.B of the Permits. Condition S8.C.4 of the Permits requires APM implement the revised SWPPP according to Condition S3 of the Permits and the applicable stormwater management manual as soon as possible, and no later than August 31<sup>st</sup> of the following year.

The Permits establish the benchmarks applicable to APM described in section IV.A of this notice of intent to sue letter.

APM has violated the requirements of the Permits described above by failing to conduct a Level Two Corrective Action in accordance with permit conditions, including the required review, revision and certification of the SWPPP, the required implementation of additional BMPs, including additional structural source control BMPs, and the required summarization in the annual report each time since January 1, 2010, its quarterly stormwater sampling results were greater than a benchmark or outside the benchmark range for any two quarters during a calendar year. As indicated in Table 1 above, these violations include, but are not limited to, APM’s failure to fulfill these obligations for zinc triggered by its stormwater sampling during calendar year 2014; for copper triggered by its stormwater sampling during calendar years 2013, 2014, 2015; and TSS triggered by its stormwater sampling during calendar year 2015.

### **C. Violations of the Level Three Requirements of the Permits.**

Condition S8.D of the Permits requires APM to take specified actions, called a “Level Three Corrective Action,” each time quarterly stormwater sample results exceed an applicable benchmark value or are outside the benchmark range for any three quarters during a calendar year.

As described by Condition S8.D of the Permits, a Level Three Corrective Action requires that APM: (1) review the SWPPP for the facility and ensure that it fully complies with Condition S3 of the Permits; (2) make appropriate revisions to the SWPPP to include additional treatment BMPs with the goal of achieving the applicable benchmark value(s) in future discharges and additional operational and/or structural source control BMPs if necessary for proper function and maintenance of treatment BMPs, and sign and certify the revised SWPPP in accordance with Condition S3.A.6 of the Permits; and (3) summarize the Level Three Corrective Action (planned or taken) in the Annual Report required under

Condition S9.B of the Permits, including information on how monitoring, assessment, or evaluation information was (or will be) used to determine whether existing treatment BMPs will be modified/enhanced, or if new/additional treatment BMPs will be installed. Condition S8.D.2.b of the Permits requires that a licensed professional engineer, geologist, hydrogeologist, or certified professional in storm water quality must design and stamp the portion of the SWPPP that addresses stormwater treatment structures or processes.

Condition S8.D.3 of the Permits requires that, before installing BMPs that require the site-specific design or sizing of structures, equipment, or processes to collect, convey, treat, reclaim, or dispose of industrial stormwater, APM submit an engineering report, plans, and specifications, and an operations and maintenance manual to Ecology for review in accordance with chapter 173-204 of the Washington Administrative Code. The engineering report must be submitted no later than the May 15th prior to the Level Three Corrective Action Deadline. The plans and specifications and the operations and maintenance manual must be submitted to Ecology at least 30 days before construction/installation.

Condition S8.D.5 of the Permits requires APM fully implement the revised SWPPP according to Condition S3 of the Permits and the applicable stormwater management manual as soon as possible, and no later than September 30th of the following year.

The Permits establish the benchmarks applicable to APM described in section IV.A of this notice of intent to sue letter.

APM has violated the requirements of the Permits described above by failing to conduct a Level Three Corrective Action in accordance with permit conditions, including the required review, revision, and certification of the SWPPP, including the requirement to have a specified professional design and stamp the portion of the SWPPP pertaining to treatment, the required implementation of additional BMPs, including additional treatment BMPs, the required submission of an engineering report, plans, specifications, and an operations and maintenance plan, and the required summarization in the annual report each time since January 1, 2010, its quarterly stormwater sampling results were greater than a benchmark or outside the benchmark range for any three quarters during a calendar year. As indicated in Table 1 above, these violations include, but are not limited to, APM's failure to fulfill these obligations for copper triggered by its stormwater sampling during calendar years 2013, 2014, and 2015; zinc triggered by its stormwater sampling during calendar year 2015; and TSS triggered by its stormwater sampling during calendar year 2015.

Soundkeeper is aware that Ecology has granted APM an extension for its Level 3 Corrective Action triggered by its 2015 exceedances. Although this extension has been granted, it was granted illegally, and will be declared void. Additionally, the extension is conditional. APM will not meet the conditions of the extension, so the extension will be invalid.



## **V. VIOLATIONS OF THE ANNUAL REPORT REQUIREMENTS.**

Condition S9.B of the Permits requires APM to submit an accurate and complete annual report to Ecology no later than May 15th of each year. The annual report must include corrective action documentation as required in Condition S8.B – D of the Permits. If a corrective action is not yet completed at the time of submission of the annual report, APM must describe the status of any outstanding corrective action. Specific information to be included in the annual report is identification of the conditions triggering the need for corrective action, description of the problem and identification of dates discovered, summary of any Level One, Two, or Three corrective actions completed during the previous calendar year, including the dates corrective actions completed, and description of the status of any Level Two or Three corrective actions triggered during the previous calendar year, including identification of the date APM expects to complete corrective actions.

APM has violated this condition. The annual report submitted by APM for 2014 (in May 2015) does not include the required information. Specifically, APM does not provide a description of the stormwater problems and the dates the problems were discovered, the description of the Level Three Corrective Actions taken are insufficient, and despite identifying uncompleted Level Two and Three Corrective Actions, no dates for completion of those Actions are specified. The annual report submitted by APM for 2015 (in May 2016) does not include the required information. Specifically, APM does not provide a description of the stormwater problems and the dates the problems were discovered.

## **VI. VIOLATIONS OF THE RECORDKEEPING REQUIREMENTS.**

### **A. Failure to Record Information.**

Condition S4.B.3 of the Permits requires APM to record and retain specified information for each stormwater sample taken, including the sample date and time, a notation describing if APM collected the sample within the first 30 minutes of stormwater discharge event, an explanation of why APM could not collect a sample within the first 30 minutes of a stormwater discharge event, the sample location, method of sampling and of preservation, and the individual performing the sampling. Upon information and belief, APM is in violation of these conditions as it has not recorded each of these specified items for each sample taken during the last five years.

### **B. Failure to Retain Records.**

Condition S9.C of the Permits requires APM to retain for a minimum of five years a copy of the Permits, a copy of APM's coverage letter, records of all sampling information, inspection reports including required documentation, any other documentation of compliance with permit requirements, all equipment calibration records, all BMP maintenance records, all original recordings for continuous sampling instrumentation, copies of all laboratory results, copies of all required reports, and records of all data used to complete the application for the Permits. Upon information and belief, APM is in violation of these conditions because it has

failed to retain records of such information, reports, and other documentation during the last five years.

## **VII. NON-STORMWATER DISCHARGE VIOLATIONS**

Condition S5.E of the Permits prohibits illicit discharges by APM. The Permits define "illicit discharge" as "any discharge that is not composed entirely of stormwater except (1) discharges authorized pursuant to a separate NPDES Permit, or (2) conditionally authorized stormwater discharges identified in Condition S5.D." Condition S7.B.3 requires APM to notify Ecology of any illicit discharge that is discovered within seven days of the discovery, and to eliminate the illicit discharge within thirty days. Illicit discharges by APM are also a violation of section 301 of the CWA, 33 U.S.C. § 1311. APM is in violation of these Conditions and section 301 of the CWA for illicit discharges of decant water into the stormwater conveyance system for every such illicit discharge that has occurred during the last five years.

## **VIII. REQUEST FOR SWPPP.**

Pursuant to Condition S9.F of the Permits, Puget Soundkeeper hereby requests that APM provide a copy of, or access to, its SWPPP complete with all incorporated plans, monitoring reports, checklists, and training and inspection logs. The copy of the SWPPP and any other communications about this request should be directed to the undersigned at the letterhead address.

Should APM fail to provide the requested complete copy of, or access to, its SWPPP as required by Condition S9.F of the Permits, it will be in violation of that condition, which violation shall also be subject to this Notice of Intent to Sue and any ensuing lawsuit.

## **IX. CONCLUSION.**

The above-described violations reflect those indicated by the information currently available to Puget Soundkeeper. These violations are ongoing. Puget Soundkeeper intends to sue for all violations, including those yet to be uncovered and those committed after the date of this Notice of Intent to Sue.

Pursuant to Sections 309(d) and 505(a) of the CWA, 33 U.S.C. §§ 1319(d) and 1365(a), and 40 C.F.R. § 19 and 19.4, each of the above-described violations subjects the violator to a penalty of up to \$37,500 per day for each violation for violations committed through November 2, 2015 and up to \$51,570 per day for each violation committed thereafter. In addition to civil penalties, Puget Soundkeeper will seek injunctive relief to prevent further violations under Sections 505(a) and (d) of the CWA, 33 USC § 1365(a) and (d), and such other relief as is permitted by law. Also, Section 505(d) of the CWA, 33 USC § 1365(d), permits prevailing parties to recover costs, including attorney's fees.

Puget Soundkeeper believes that this NOTICE OF INTENT TO SUE sufficiently states grounds for filing suit. We intend, at the close of the 60-day notice period, or shortly thereafter, to file a citizen suit against APM under Section 505(a) of the Clean Water Act for violations.

During the 60-day notice period, we would be willing to discuss effective remedies for the violations addressed in this letter and settlement terms. If you wish to pursue such discussions in the absence of litigation, we suggest that you initiate those discussions within 10 days of receiving this notice so that a meeting can be arranged and so that negotiations may be completed promptly. We do not intend to delay the filing of a complaint if discussions are continuing when the notice period ends.

Very truly yours,

SMITH & LOWNEY, PLLC

By:   
Knoll Lowney  
Alyssa Englebrecht

cc: Gina McCarthy, Administrator, U.S. EPA  
Dennis McLerran, Region 10 Administrator, U.S. EPA  
Maia Bellon, Director, Washington Department of Ecology  
CT Corporation System, Registered Agent (505 Union Avenue SE, Ste 120, Olympia, WA 98501)

# Precipitation Data

|                   |      |                   |      |                   |      |
|-------------------|------|-------------------|------|-------------------|------|
|                   |      | 9                 | 0    | 18                | 0.58 |
| 2011 Precip. (in) |      | 10                | 0.01 | 19                | 0.65 |
| Nov               | sum  | 11                | 0.01 | 20                | 0.38 |
| 1                 | 0    | 12                | 0    | 21                | 0.17 |
| 2                 | 0.43 | 13                | 0    | 22                | 0.11 |
| 3                 | 0.01 | 14                | 0    | 23                | 0    |
| 4                 | 0    | 15                | 0.05 | 24                | 0.45 |
| 5                 | 0    | 16                | 0    | 25                | 0.29 |
| 6                 | 0    | 17                | 0    | 26                | 0.17 |
| 7                 | 0    | 18                | 0.07 | 27                | 0    |
| 8                 | 0    | 19                | 0    | 28                | 0    |
| 9                 | 0.01 | 20                | 0    | 29                | 0.95 |
| 10                | 0    | 21                | 0    | 30                | 0.04 |
| 11                | 0.19 | 22                | 0    | 31                | 0.1  |
| 12                | 0.11 | 23                | 0    | 2012 Precip. (in) |      |
| 13                | 0.14 | 24                | 0.01 | Feb               | sum  |
| 14                | 0.01 | 25                | 0.13 | 1                 | 0.36 |
| 15                | 0    | 26                | 0.07 | 2                 | 0    |
| 16                | 0.36 | 27                | 0.61 | 3                 | 0    |
| 17                | 0.38 | 28                | 0.72 | 4                 | 0    |
| 18                | 0    | 29                | 0.42 | 5                 | 0    |
| 19                | 0.02 | 30                | 0.37 | 6                 | 0    |
| 20                | 0    | 31                | 0    | 7                 | 0.04 |
| 21                | 0.24 | 2012 Precip. (in) |      | 8                 | 0.16 |
| 22                | 1.99 | Jan               | sum  | 9                 | 0.2  |
| 23                | 0.69 | 1                 | 0    | 10                | 0.12 |
| 24                | 0.45 | 2                 | 0.11 | 11                | 0.01 |
| 25                | 0    | 3                 | 0.01 | 12                | 0.06 |
| 26                | 0.02 | 4                 | 0.44 | 13                | 0.13 |
| 27                | 0.42 | 5                 | 0.15 | 14                | 0.06 |
| 28                | 0    | 6                 | 0.02 | 15                | 0    |
| 29                | 0.06 | 7                 | 0    | 16                | 0.14 |
| 30                | 0    | 8                 | 0    | 17                | 0.47 |
| 2011 Precip. (in) |      | 9                 | 0.27 | 18                | 0.42 |
| Dec               | sum  | 10                | 0.03 | 19                | 0    |
| 1                 | 0    | 11                | 0    | 20                | 0.11 |
| 2                 | 0    | 12                | 0    | 21                | 0.26 |
| 3                 | 0    | 13                | 0    | 22                | 0.1  |
| 4                 | 0    | 14                | 0.19 | 23                | 0    |
| 5                 | 0    | 15                | 0.07 | 24                | 0.31 |
| 6                 | 0    | 16                | 0.05 | 25                | 0.02 |
| 7                 | 0    | 17                | 0.35 | 26                | 0    |
| 8                 | 0    |                   |      | 27                | 0    |

Weather History for McChord Air Force Base

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# Precipitation Data

|      |              |      |              |      |              |
|------|--------------|------|--------------|------|--------------|
| 28   | 0.08         | 4    | 0.01         | 14   | 0            |
| 29   | 0.25         | 5    | 0.03         | 15   | 0            |
| 2012 | Precip. (in) | 6    | 0            | 16   | 0            |
| Mar  | sum          | 7    | 0            | 17   | 0            |
| 1    | 0            | 8    | 0            | 18   | 0            |
| 2    | 0.01         | 9    | 0            | 19   | 0            |
| 3    | 0            | 10   | 0            | 20   | 0.25         |
| 4    | 0            | 11   | 0.23         | 21   | 0.73         |
| 5    | 0.35         | 12   | 0.01         | 22   | 0.23         |
| 6    | 0.04         | 13   | 0            | 23   | 0.26         |
| 7    | 0            | 14   | 0            | 24   | 0            |
| 8    | 0            | 15   | 0            | 25   | 0            |
| 9    | 0            | 16   | 0.34         | 26   | 0            |
| 10   | 0.34         | 17   | 0.1          | 27   | 0            |
| 11   | 0.4          | 18   | 0.12         | 28   | 0.02         |
| 12   | 0.48         | 19   | 0.59         | 29   | 0            |
| 13   | 0.22         | 20   | 0.3          | 30   | 0            |
| 14   | 0.21         | 21   | 0            | 31   | 0.15         |
| 15   | 0.59         | 22   | 0            | 2012 | Precip. (in) |
| 16   | 0.3          | 23   | 0            | Jun  | sum          |
| 17   | 0.51         | 24   | 0.03         | 1    | 0.27         |
| 18   | 0.04         | 25   | 0.55         | 2    | 0.04         |
| 19   | 0.03         | 26   | 0.26         | 3    | 0            |
| 20   | 0.4          | 27   | 0.04         | 4    | 0.05         |
| 21   | 0.08         | 28   | 0            | 5    | 0.27         |
| 22   | 0.96         | 29   | 0.16         | 6    | 0            |
| 23   | 0            | 30   | 0.31         | 7    | 0.58         |
| 24   | 0            | 2012 | Precip. (in) | 8    | 0.2          |
| 25   | 0            | May  | sum          | 9    | 0            |
| 26   | 11.38        | 1    | 0.14         | 10   | 0            |
| 27   | 0.04         | 2    | 0.01         | 11   | 0            |
| 28   | 0.08         | 3    | 0.62         | 12   | 0.1          |
| 29   | 1.19         | 4    | 0.02         | 13   | 0            |
| 30   | 0.23         | 5    | 0            | 14   | 0            |
| 31   | 0.48         | 6    | 0            | 15   | 0            |
| 2012 | Precip. (in) | 7    | 0            | 16   | 0.02         |
| Apr  | sum          | 8    | 0            | 17   | 0            |
| 1    | 0.07         | 9    | 0            | 18   | 0.01         |
| 2    | 0            | 10   | 0            | 19   | 0.02         |
| 3    | 0.18         | 11   | 0            | 20   | 0            |
|      |              | 12   | 0            | 21   | 0            |
|      |              | 13   | 0            | 22   | 0.18         |

# Precipitation Data

|    |      |
|----|------|
| 23 | 0.45 |
| 24 | 0    |
| 25 | 0.03 |
| 26 | 0    |
| 27 | 0    |
| 28 | 0.01 |
| 29 | 0    |
| 30 | 0.06 |

| 2012 | Precip. (in) |
|------|--------------|
| Jul  | sum          |
| 1    | 0            |
| 2    | 0.03         |
| 3    | 0.13         |
| 4    | 0            |
| 5    | 0            |
| 6    | 0            |
| 7    | 0            |
| 8    | 0            |
| 9    | 0            |
| 10   | 0            |
| 11   | 0            |
| 12   | 0            |
| 13   | 0.01         |
| 14   | 0            |
| 15   | 0            |
| 16   | 0.11         |
| 17   | 0            |
| 18   | 0            |
| 19   | 0            |
| 20   | 0.62         |
| 21   | 0            |
| 22   | 0            |
| 23   | 0            |
| 24   | 0            |
| 25   | 0            |
| 26   | 0            |
| 27   | 0            |
| 28   | 0            |
| 29   | 0            |
| 30   | 0            |
| 31   | 0            |

| 2012 | Precip. (in) |
|------|--------------|
| Aug  | sum          |
| 1    | 0            |
| 2    | 0            |
| 3    | 0            |
| 4    | 0            |
| 5    | 0            |
| 6    | 0            |
| 7    | 0            |
| 8    | 0            |
| 9    | 0            |
| 10   | 0            |
| 11   | 0            |
| 12   | 0            |
| 13   | 0            |
| 14   | 0            |
| 15   | 0            |
| 16   | 0            |
| 17   | 0            |
| 18   | 0            |
| 19   | 0            |
| 20   | 0            |
| 21   | 0            |
| 22   | 0            |
| 23   | 0            |
| 24   | 0            |
| 25   | 0            |
| 26   | 0            |
| 27   | 0            |
| 28   | 0            |
| 29   | 0            |
| 30   | 0            |
| 31   | 0            |

| 2012 | Precip. (in) |
|------|--------------|
| Sep  | sum          |
| 1    | 0            |
| 2    | 0            |
| 3    | 0            |
| 4    | 0            |
| 5    | 0            |
| 6    | 0            |

|    |      |
|----|------|
| 7  | 0    |
| 8  | 0    |
| 9  | 0    |
| 10 | 0    |
| 11 | 0    |
| 12 | 0    |
| 13 | 0    |
| 14 | 0    |
| 15 | 0    |
| 16 | 0    |
| 17 | 0    |
| 18 | 0    |
| 19 | 0    |
| 20 | 0    |
| 21 | 0    |
| 22 | 0    |
| 23 | 0    |
| 24 | 0    |
| 25 | 0    |
| 26 | 0    |
| 27 | 0    |
| 28 | 0    |
| 29 | 0.01 |
| 30 | 0    |

| 2012 | Precip. (in) |
|------|--------------|
| Oct  | sum          |
| 1    | 0            |
| 2    | 0            |
| 3    | 0            |
| 4    | 0            |
| 5    | 0            |
| 6    | 0            |
| 7    | 0            |
| 8    | 0            |
| 9    | 0            |
| 10   | 0            |
| 11   | 0            |
| 12   | 0.05         |
| 13   | 0.32         |
| 14   | 0.29         |
| 15   | 0.33         |
| 16   | 0            |

# Precipitation Data

|      |              |      |              |      |              |
|------|--------------|------|--------------|------|--------------|
| 17   | 0            | 26   | 0            | Jan  | sum          |
| 18   | 0.33         | 27   | 0            | 1    | 0            |
| 19   | 0.17         | 28   | 0.07         | 2    | 0            |
| 20   | 0.18         | 29   | 0.1          | 3    | 0.1          |
| 21   | 0.24         | 30   | 1.04         | 4    | 0.02         |
| 22   | 0.33         |      |              | 5    | 0.05         |
| 23   | 0            |      |              | 6    | 0.12         |
| 24   | 0.17         | 2012 | Precip. (in) | 7    | 0.12         |
| 25   | 0            | Dec  | sum          | 8    | 0.22         |
| 26   | 0.13         | 1    | 0.32         | 9    | 0.81         |
| 27   | 0.76         | 2    | 0.51         | 10   | 0.01         |
| 28   | 0.23         | 3    | 0.36         | 11   | 0            |
| 29   | 0.59         | 4    | 0.54         | 12   | 0            |
| 30   | 0.92         | 5    | 0.11         | 13   | 0            |
|      | 0.42         | 6    | 0.25         | 14   | 0            |
| 31   |              | 7    | 0.22         | 15   | 0            |
|      |              | 8    | 0            | 16   | 0            |
| 2012 | Precip. (in) | 9    | 0.09         | 17   | 0            |
| Nov  | sum          | 10   | 0.06         | 18   | 0            |
| 1    | 0.53         | 11   | 0.17         | 19   | 0            |
| 2    | 0.23         | 12   | 0            | 20   | 0            |
| 3    | 0.02         | 13   | 0.05         | 21   | 0            |
| 4    | 0.11         | 14   | 0.22         | 22   | 0            |
| 5    | 0.05         | 15   | 0.05         | 23   | 0.12         |
| 6    | 0.02         | 16   | 0.91         | 24   | 0.15         |
| 7    | 0            | 17   | 0.27         | 25   | 0.1          |
| 8    | 0            | 18   | 0.21         | 26   | 0.01         |
| 9    | 0            | 19   | 0.76         | 27   | 0.09         |
| 10   | 0            | 20   | 0.35         | 28   | 0.14         |
| 11   | 0.64         | 21   | 0.01         | 29   | 0.13         |
| 12   | 0.07         | 22   | 0.08         | 30   | 0.15         |
| 13   | 0.14         | 23   | 0.27         | 31   | 0.05         |
| 14   | 0            | 24   | 0.02         |      |              |
| 15   | 0            | 25   | 0.44         | 2013 | Precip. (in) |
| 16   | 0.18         | 26   | 0.25         | Feb  | sum          |
| 17   | 0.33         | 27   | 0.01         | 1    | 0            |
| 18   | 0.36         | 28   | 0            | 2    | 0            |
| 19   | 1.73         | 29   | 0.09         | 3    | 0.02         |
| 20   | 0.11         | 30   | 0            | 4    | 0            |
| 21   | 0.27         |      |              | 5    | 0.12         |
| 22   | 0.02         | 31   | 0            | 6    | 0.05         |
| 23   | 0.73         |      |              | 7    | 0.05         |
| 24   | 0.01         |      |              | 8    | 0            |
| 25   | 0            | 2013 | Precip. (in) | 9    | 0            |

# Precipitation Data

|      |              |      |              |      |              |
|------|--------------|------|--------------|------|--------------|
| 10   | 0            | 22   | 0            | 2013 | Precip. (in) |
| 11   | 0.02         | 23   | 0            |      |              |
| 12   | 0            | 24   | 0            | May  | sum          |
| 13   | 0.03         | 25   | 0            |      |              |
| 14   | 0            | 26   | 0            | 1    | 0            |
| 15   | 0            | 27   | 0            | 2    | 0            |
| 16   | 0.03         | 28   | 0.15         | 3    | 0            |
| 17   | 0.02         | 29   | 0            | 4    | 0            |
| 18   | 0            | 30   | 0            | 5    | 0            |
| 19   | 0.01         | 31   | 0            | 6    | 0            |
| 20   | 0.08         |      |              | 7    | 0            |
| 21   | 0.09         | 2013 | Precip. (in) | 8    | 0            |
| 22   | 0.49         |      |              | 9    | 0            |
| 23   | 0            | Apr  | sum          | 10   | 0            |
| 24   | 0.01         | 1    | 0            | 11   | 0            |
| 25   | 0.12         | 2    | 0            | 12   | 0.1          |
| 26   | 0            | 3    | 0            | 13   | 0.29         |
| 27   | 0.1          | 4    | 0.18         | 14   | 0            |
| 28   | 0.56         | 5    | 0.9          | 15   | 0.06         |
|      |              | 6    | 0.58         | 16   | 0            |
| 2013 | Precip. (in) | 7    | 0.91         | 17   | 0.25         |
| Mar  | sum          | 8    | 0            | 18   | 0.09         |
|      |              | 9    | 0            | 19   | 0.03         |
| 1    | 0.02         | 10   | 0.22         | 20   | 0            |
| 2    | 0.09         | 11   | 0            | 21   | 0.51         |
| 3    | 0            | 12   | 0.24         | 22   | 0.53         |
| 4    | 0            | 13   | 0.11         | 23   | 0.5          |
| 5    | 0.03         | 14   | 0.35         | 24   | 0.22         |
| 6    | 0.43         | 15   | 0            | 25   | 0.01         |
| 7    | 0.23         | 16   | 0            | 26   | 0.4          |
| 8    | 0            | 17   | 0            | 27   | 0.4          |
| 9    | 0            | 18   | 0.05         | 28   | 0.1          |
| 10   | 0.05         | 19   | 0.47         | 29   | 0.28         |
| 11   | 0.08         | 20   | 0            | 30   | 0.24         |
| 12   | 0.09         | 21   | 0.03         | 31   | 0            |
| 13   | 0.15         | 22   | 0            |      |              |
| 14   | 0.05         | 23   | 0            | 2013 | Precip. (in) |
| 15   | 0.15         | 24   | 0            |      |              |
| 16   | 0.13         | 25   | 0            | Jun  | sum          |
| 17   | 0.06         | 26   | 0            |      |              |
| 18   | 0.01         | 27   | 0.03         | 1    | 0            |
| 19   | 0.32         | 28   | 0.1          | 2    | 0            |
| 20   | 0.51         | 29   | 0.02         | 3    | 0            |
| 21   | 0.01         | 30   | 0            | 4    | 0            |
|      |              |      |              | 5    | 0            |

Weather History for McChord Air Force Base

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# Precipitation Data

|             |                     |             |                     |             |                     |
|-------------|---------------------|-------------|---------------------|-------------|---------------------|
| 6           | 0                   | 16          | 0                   | 25          | 0                   |
| 7           | 0                   | 17          | 0                   | 26          | 0.04                |
| 8           | 0                   | 18          | 0                   | 27          | 0                   |
| 9           | 0                   | 19          | 0                   | 28          | 0.24                |
| 10          | 0                   | 20          | 0                   | 29          | 0.4                 |
| 11          | 0.05                | 21          | 0                   | 30          | 0                   |
| 12          | 0.2                 | 22          | 0                   | 31          | 0                   |
| 13          | 0.12                | 23          | 0                   |             |                     |
| 14          | 0                   | 24          | 0                   | <b>2013</b> | <b>Precip. (in)</b> |
| 15          | 0                   | 25          | 0                   |             |                     |
| 16          | 0                   | 26          | 0                   | Sep         | sum                 |
| 17          | 0                   | 27          | 0                   | 1           | 0                   |
| 18          | 0.01                | 28          | 0                   | 2           | 0                   |
| 19          | 0                   | 29          | 0                   | 3           | 0.42                |
| 20          | 0.12                | 30          | 0                   | 4           | 0.01                |
| 21          | 0                   | 31          | 0                   | 5           | 0.59                |
| 22          | 0                   |             |                     | 6           | 1.44                |
| 23          | 0.65                | <b>2013</b> | <b>Precip. (in)</b> | 7           | 0                   |
| 24          | 0.26                |             |                     | 8           | 0                   |
| 25          | 0.26                | Aug         | sum                 | 9           | 0                   |
| 26          | 0.02                | 1           | 0                   | 10          | 0                   |
| 27          | 0.26                | 2           | 0.03                | 11          | 0                   |
| 28          | 0.01                | 3           | 0                   | 12          | 0                   |
| 29          | 0                   | 4           | 0                   | 13          | 0                   |
| 30          | 0                   | 5           | 0                   | 14          | 0                   |
|             |                     | 6           | 0                   | 15          | 0                   |
| <b>2013</b> | <b>Precip. (in)</b> | 7           | 0                   | 16          | 0.06                |
|             |                     | 8           | 0                   | 17          | 0                   |
| Jul         | sum                 | 9           | 0.01                | 18          | 0                   |
| 1           | 0                   | 10          | 0.06                | 19          | 0                   |
| 2           | 0                   | 11          | 0                   | 20          | 0.15                |
| 3           | 0                   | 12          | 0                   | 21          | 0                   |
| 4           | 0                   | 13          | 0                   | 22          | 0.57                |
| 5           | 0                   | 14          | 0.09                | 23          | 0.14                |
| 6           | 0                   | 15          | 0.03                | 24          | 0.34                |
| 7           | 0                   | 16          | 0                   | 25          | 0.24                |
| 8           | 0                   | 17          | 0                   | 26          | 0                   |
| 9           | 0                   | 18          | 0                   | 27          | 0.05                |
| 10          | 0                   | 19          | 0                   | 28          | 1.65                |
| 11          | 0                   | 20          | 0                   | 29          | 0.59                |
| 12          | 0                   | 21          | 0                   | 30          | 1.53                |
| 13          | 0                   | 22          | 0                   |             |                     |
| 14          | 0                   | 23          | 0                   | <b>2013</b> | <b>Precip. (in)</b> |
| 15          | 0                   | 24          | 0                   |             |                     |

Weather History for McChord Air Force Base  
Downloaded from <https://www.wunderground.com/history/airport/KTCM/>

# Precipitation Data

|             |                     |             |                     |             |                     |
|-------------|---------------------|-------------|---------------------|-------------|---------------------|
| 27          | 0                   | 5           | 1.34                | 14          | 0                   |
| 28          | 0.37                | 6           | 0.36                | 15          | 0                   |
| 29          | 0.78                | 7           | 0                   | 16          | 0.18                |
| 30          | 0.08                | 8           | 1.08                | 17          | 0.53                |
| 31          | 0.05                | 9           | 0.44                | 18          | 0                   |
| <b>2014</b> | <b>Precip. (in)</b> | 10          | 0.61                | 19          | 0.5                 |
| Feb         | sum                 | 11          | 0                   | 20          | 0.02                |
| 1           | 0.03                | 12          | 0                   | 21          | 0.5                 |
| 2           | 0                   | 13          | 0                   | 22          | 0.62                |
| 3           | 0                   | 14          | 0.25                | 23          | 0.35                |
| 4           | 0                   | 15          | 0.18                | 24          | 0.27                |
| 5           | 0                   | 16          | 1.04                | 25          | 0                   |
| 6           | 0                   | 17          | 0                   | 26          | 0.09                |
| 7           | 0                   | 18          | 0.02                | 27          | 0.4                 |
| 8           | 0.05                | 19          | 0.24                | 28          | 0.03                |
| 9           | 0.18                | 20          | 0                   | 29          | 0                   |
| 10          | 0.37                | 21          | 0                   | 30          | 0                   |
| 11          | 0.54                | 22          | 0                   | <b>2014</b> | <b>Precip. (in)</b> |
| 12          | 0.18                | 23          | 0                   | May         | sum                 |
| 13          | 0.09                | 24          | 0                   | 1           | 0                   |
| 14          | 0.24                | 25          | 0.12                | 2           | 0                   |
| 15          | 0.47                | 26          | 0.16                | 3           | 0.66                |
| 16          | 1.11                | 27          | 0.28                | 4           | 0.48                |
| 17          | 1.19                | 28          | 0.47                | 5           | 0.08                |
| 18          | 0.62                | 29          | 0.79                | 6           | 0                   |
| 19          | 0.17                | 30          | 0.09                | 7           | 0                   |
| 20          | 0.23                | 31          | 0                   | 8           | 0.5                 |
| 21          | 0.03                | <b>2014</b> | <b>Precip. (in)</b> | 9           | 0.31                |
| 22          | 0.06                | Apr         | sum                 | 10          | 0                   |
| 23          | 0.23                | 1           | 0                   | 11          | 0                   |
| 24          | 0.65                | 2           | 0                   | 12          | 0                   |
| 25          | 0.02                | 3           | 0.07                | 13          | 0                   |
| 26          | 0                   | 4           | 0.08                | 14          | 0                   |
| 27          | 0                   | 5           | 0.18                | 15          | 0                   |
| 28          | 0                   | 6           | 0.02                | 16          | 0                   |
| <b>2014</b> | <b>Precip. (in)</b> | 7           | 0                   | 17          | 0                   |
| Mar         | sum                 | 8           | 0.21                | 18          | 0.36                |
| 1           | 0.01                | 9           | 0                   | 19          | 0                   |
| 2           | 0.56                | 10          | 0                   | 20          | 0                   |
| 3           | 0.41                | 11          | 0                   | 21          | 0                   |
| 4           | 0.54                | 12          | 0                   | 22          | 0                   |
|             |                     | 13          | 0                   | 23          | 0.16                |

# Precipitation Data

|      |              |      |              |      |              |
|------|--------------|------|--------------|------|--------------|
| 24   | 0            |      |              | 8    | 0            |
| 25   | 0.33         | Jul  | sum          | 9    | 0            |
| 26   | 0.02         |      | 1            | 0    | 10           |
| 27   | 0            |      | 2            | 0    | 11           |
| 28   | 0.01         |      | 3            | 0    | 12           |
| 29   | 0            |      | 4            | 0    | 13           |
| 30   | 0            |      | 5            | 0    | 14           |
| 31   | 0            |      | 6            | 0    | 15           |
|      |              |      | 7            | 0    | 16           |
| 2014 | Precip. (in) |      | 8            | 0    | 17           |
|      |              |      | 9            | 0    | 18           |
| Jun  | sum          |      | 10           | 0    | 19           |
| 1    | 0            |      | 11           | 0    | 20           |
| 2    | 0            |      | 12           | 0    | 21           |
| 3    | 0            |      | 13           | 0    | 22           |
| 4    | 0            |      | 14           | 0    | 23           |
| 5    | 0            |      | 15           | 0    | 24           |
| 6    | 0            |      | 16           | 0    | 25           |
| 7    | 0            |      | 17           | 0    | 26           |
| 8    | 0            |      | 18           | 0    | 27           |
| 9    | 0.01         |      | 19           | 0    | 28           |
| 10   | 0            |      | 20           | 0    | 29           |
| 11   | 0            |      | 21           | 0    | 30           |
| 12   | 0.06         |      | 22           | 0    | 31           |
| 13   | 0.19         |      | 23           | 0.54 |              |
| 14   | 0            |      | 24           | 0.01 | 2014         |
| 15   | 0            |      | 25           | 0    | Precip. (in) |
| 16   | 0.03         |      | 26           | 0    | Sep          |
| 17   | 0.02         |      | 27           | 0    | sum          |
| 18   | 0            |      | 28           | 0    | 1            |
| 19   | 0            |      | 29           | 0    | 2            |
| 20   | 0.01         |      | 30           | 0    | 3            |
| 21   | 0            |      | 31           | 0    | 4            |
| 22   | 0            |      |              |      | 5            |
| 23   | 0.01         | 2014 | Precip. (in) |      | 6            |
| 24   | 0            |      |              |      | 7            |
| 25   | 0            | Aug  | sum          |      | 8            |
| 26   | 0.01         |      | 1            | 0    | 9            |
| 27   | 0.19         |      | 2            | 0    | 10           |
| 28   | 0.25         |      | 3            | 0    | 11           |
| 29   | 0            |      | 4            | 0    | 12           |
| 30   | 0            |      | 5            | 0    | 13           |
|      |              |      | 6            | 0    | 14           |
| 2014 | Precip. (in) |      | 7            | 0    | 15           |
|      |              |      |              |      | 16           |



# Precipitation Data

|    |      |      |              |      |              |
|----|------|------|--------------|------|--------------|
| 17 | 0.03 | 27   | 0.02         | 2    | 0            |
| 18 | 0.01 | 28   | 0.51         | 3    | 0            |
| 19 | 0    | 29   | 0.08         | 4    | 0.03         |
| 20 | 0    | 30   | 0.48         | 5    | 0.1          |
| 21 | 0    | 31   | 0.66         | 6    | 0.19         |
| 22 | 0    |      |              | 7    | 0            |
| 23 | 0.67 | 2014 | Precip. (in) | 8    | 0.27         |
| 24 | 0.7  |      |              | 9    | 0.43         |
| 25 | 0.06 | Nov  | sum          | 10   | 0.58         |
| 26 | 0.42 |      |              | 11   | 0.22         |
| 27 | 0.01 | 1    | 0.01         | 12   | 0.15         |
| 28 | 0    | 2    | 0.13         | 13   | 0            |
| 29 | 0.08 | 3    | 0.62         | 14   | 0            |
| 30 | 0    | 4    | 0.14         | 15   | 0            |
|    |      | 5    | 0.19         | 16   | 0.04         |
|    |      | 6    | 0.28         | 17   | 0.14         |
|    |      | 7    | 0            | 18   | 0.36         |
|    |      | 8    | 0            | 19   | 0.03         |
|    |      | 9    | 0.58         | 20   | 0.85         |
|    |      | 10   | 0            | 21   | 0.05         |
|    |      | 11   | 0            | 22   | 0.01         |
|    |      | 12   | 0            | 23   | 0.66         |
|    |      | 13   | 0            | 24   | 0.22         |
|    |      | 14   | 0            | 25   | 0.01         |
|    |      | 15   | 0            | 26   | 0.01         |
|    |      | 16   | 0            | 27   | 0.19         |
|    |      | 17   | 0            | 28   | 0            |
|    |      | 18   | 0            | 29   | 0.02         |
|    |      | 19   | 0.07         | 30   | 0            |
|    |      | 20   | 0.07         | 31   | 0            |
|    |      | 21   | 0.55         |      |              |
|    |      | 22   | 0.27         |      |              |
|    |      | 23   | 0.42         |      |              |
|    |      | 24   | 0.2          | 2015 | Precip. (in) |
|    |      | 25   | 1.2          |      |              |
|    |      | 26   | 0.02         | Jan  | sum          |
|    |      | 27   | 0.13         |      |              |
|    |      | 28   | 0.8          | 1    | 0            |
|    |      | 29   | 0.08         | 2    | 0.02         |
|    |      | 30   | 0            | 3    | 0.04         |
|    |      |      |              | 4    | 1.1          |
|    |      |      |              | 5    | 0.46         |
|    |      |      |              | 6    | 0            |
|    |      |      |              | 7    | 0.01         |
|    |      |      |              | 8    | 0            |
|    |      |      |              | 9    | 0            |
|    |      |      |              | 10   | 0.11         |
|    |      | 2014 | Precip. (in) |      |              |
|    |      |      |              |      |              |
|    |      | Dec  | sum          |      |              |
|    |      |      |              |      |              |
|    |      | 1    | 0            |      |              |

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# Precipitation Data

|      |              |      |              |      |              |
|------|--------------|------|--------------|------|--------------|
| 11   | 0.06         | 21   | 0            | 2015 | Precip. (in) |
| 12   | 0            | 22   | 0            |      |              |
| 13   | 0            | 23   | 0            | Apr  | sum          |
| 14   | 0            | 24   | 0            |      |              |
| 15   | 0.28         | 25   | 0.09         | 1    | 0.07         |
| 16   | 0.02         | 26   | 0.2          | 2    | 0            |
| 17   | 1            | 27   | 0.85         | 3    | 0.15         |
| 18   | 0.18         | 28   | 0            | 4    | 0            |
| 19   | 0.04         |      |              | 5    | 0            |
| 20   | 0            | 2015 | Precip. (in) | 6    | 0.05         |
| 21   | 0            | Mar  | sum          | 7    | 0.08         |
| 22   | 0.05         |      |              | 8    | 0.2          |
| 23   | 0.27         | 1    | 0            | 9    | 0            |
| 24   | 0.06         | 2    | 0            | 10   | 0.26         |
| 25   | 0            | 3    | 0            | 11   | 0.08         |
| 26   | 0            | 4    | 0            | 12   | 0            |
| 27   | 0            | 5    | 0            | 13   | 0.26         |
| 28   | 0            | 6    | 0            | 14   | 0            |
| 29   | 0            | 7    | 0            | 15   | 0            |
| 30   | 0            | 8    | 0            | 16   | 0            |
| 31   | 0            | 9    | 0            | 17   | 0            |
|      |              | 10   | 0            | 18   | 0            |
| 2015 | Precip. (in) | 11   | 0.07         | 19   | 0            |
| Feb  | sum          | 12   | 0.01         | 20   | 0            |
| 1    | 0.15         | 13   | 0.05         | 21   | 0.01         |
| 2    | 0.18         | 14   | 0.67         | 22   | 0.01         |
| 3    | 0            | 15   | 1.36         | 23   | 0.07         |
| 4    | 0.34         | 16   | 0            | 24   | 0.46         |
| 5    | 0.72         | 17   | 0.04         | 25   | 0.06         |
| 6    | 0.38         | 18   | 0            | 26   | 0.01         |
| 7    | 0.88         | 19   | 0            | 27   | 0.02         |
| 8    | 0.12         | 20   | 0.14         | 28   | 0.1          |
| 9    | 0.25         | 21   | 0.19         | 29   | 0            |
| 10   | 0.01         | 22   | 0.14         | 30   | 0            |
| 11   | 0            | 23   | 0.22         |      |              |
| 12   | 0.04         | 24   | 0.26         | 2015 | Precip. (in) |
| 13   | 0            | 25   | 0.18         |      |              |
| 14   | 0.04         | 26   | 0            | May  | sum          |
| 15   | 0            | 27   | 0.17         |      |              |
| 16   | 0            | 28   | 0.01         | 1    | 0            |
| 17   | 0            | 29   | 0            | 2    | 0            |
| 18   | 0            | 30   | 0            | 3    | 0            |
| 19   | 0.1          | 31   | 0.08         | 4    | 0.01         |
| 20   | 0.04         |      |              | 5    | 0.09         |
|      |              |      |              | 6    | 0            |

# Precipitation Data

|      |              |      |              |      |              |
|------|--------------|------|--------------|------|--------------|
| 7    | 0            | 16   | 0            | 26   | 0.01         |
| 8    | 0            | 17   | 0            | 27   | 0            |
| 9    | 0            | 18   | 0            | 28   | 0            |
| 10   | 0            | 19   | 0            | 29   | 0            |
| 11   | 0.01         | 20   | 0            | 30   | 0            |
| 12   | 0.34         | 21   | 0            | 31   | 0            |
| 13   | 0.13         | 22   | 0            |      |              |
| 14   | 0.01         | 23   | 0            | 2015 | Precip. (in) |
| 15   | 0            | 24   | 0            |      |              |
| 16   | 0            | 25   | 0            | Aug  | sum          |
| 17   | 0            | 26   | 0            | 1    | 0            |
| 18   | 0            | 27   | 0            | 2    | 0            |
| 19   | 0            | 28   | 0            | 3    | 0            |
| 20   | 0            | 29   | 0            | 4    | 0            |
| 21   | 0            | 30   | 0            | 5    | 0            |
| 22   | 0            |      |              | 6    | 0            |
| 23   | 0            | 2015 | Precip. (in) | 7    | 0            |
| 24   | 0            |      |              | 8    | 0            |
| 25   | 0            | Jul  | sum          | 9    | 0            |
| 26   | 0            | 1    | 0            | 10   | 0.02         |
| 27   | 0            | 2    | 0            | 11   | 0            |
| 28   | 0            | 3    | 0            | 12   | 0            |
| 29   | 0            | 4    | 0            | 13   | 0            |
| 30   | 0            | 5    | 0            | 14   | 0.31         |
| 31   | 0            | 6    | 0            | 15   | 0            |
|      |              | 7    | 0            | 16   | 0            |
|      |              | 8    | 0            | 17   | 0            |
|      |              | 9    | 0            | 18   | 0            |
|      |              | 10   | 0            | 19   | 0            |
|      |              | 11   | 0            | 20   | 0            |
|      |              | 12   | 0            | 21   | 0            |
|      |              | 13   | 0            | 22   | 0            |
|      |              | 14   | 0            | 23   | 0            |
|      |              | 15   | 0            | 24   | 0            |
|      |              | 16   | 0            | 25   | 0            |
|      |              | 17   | 0            | 26   | 0            |
|      |              | 18   | 0            | 27   | 0            |
|      |              | 19   | 0            | 28   | 0.03         |
|      |              | 20   | 0            | 29   | 1.01         |
|      |              | 21   | 0            | 30   | 0.66         |
|      |              | 22   | 0            | 31   | 0            |
|      |              | 23   | 0            |      |              |
|      |              | 24   | 0            | 2015 | Precip. (in) |
|      |              | 25   | 0            |      |              |
| 2015 | Precip. (in) |      |              |      |              |
| Jun  | sum          |      |              |      |              |
| 1    | 0.05         |      |              |      |              |
| 2    | 0.09         |      |              |      |              |
| 3    | 0            |      |              |      |              |
| 4    | 0            |      |              |      |              |
| 5    | 0            |      |              |      |              |
| 6    | 0            |      |              |      |              |
| 7    | 0            |      |              |      |              |
| 8    | 0            |      |              |      |              |
| 9    | 0            |      |              |      |              |
| 10   | 0            |      |              |      |              |
| 11   | 0            |      |              |      |              |
| 12   | 0            |      |              |      |              |
| 13   | 0            |      |              |      |              |
| 14   | 0            |      |              |      |              |
| 15   | 0            |      |              |      |              |

Weather History for McChord Air Force Base

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# Precipitation Data

|                   |     |      |                   |      |                   |      |
|-------------------|-----|------|-------------------|------|-------------------|------|
| Sep               |     | sum  | 9                 | 0.03 | 18                | 0.06 |
|                   |     |      | 10                | 0.46 | 19                | 0.06 |
| 1                 |     | 0.3  | 11                | 0    | 20                | 0    |
| 2                 |     | 0.11 | 12                | 0    | 21                | 0    |
| 3                 |     | 0.09 | 13                | 0.05 | 22                | 0    |
| 4                 |     | 0    | 14                | 0    | 23                | 0.08 |
| 5                 |     | 0    | 15                | 0    | 24                | 0.22 |
| 6                 |     | 0.17 | 16                | 0    | 25                | 0    |
| 7                 |     | 0.11 | 17                | 0.08 | 26                | 0    |
| 8                 |     | 0    | 18                | 0.04 | 27                | 0    |
| 9                 |     | 0    | 19                | 0.14 | 28                | 0    |
| 10                |     | 0    | 20                | 0    | 29                | 0    |
| 11                |     | 0    | 21                | 0.01 | 30                | 0.01 |
| 12                |     | 0    | 22                | 0    | 2015 Precip. (in) |      |
| 13                |     | 0    | 23                | 0    | Dec               | sum  |
| 14                |     | 0    | 24                | 0    |                   |      |
| 15                |     | 0    | 25                | 0.29 | 1                 | 0.5  |
| 16                |     | 0.09 | 26                | 0.35 | 2                 | 0.1  |
| 17                |     | 0.21 | 27                | 0    | 3                 | 0.45 |
| 18                |     | 0    | 28                | 0.23 | 4                 | 0.24 |
| 19                |     | 0    | 29                | 0.17 | 5                 | 0.26 |
| 20                |     | 0.02 | 30                | 0.81 | 6                 | 0.24 |
| 21                |     | 0    | 31                | 1.78 | 7                 | 1    |
| 22                |     | 0    | 2015 Precip. (in) |      | 8                 | 1.96 |
| 23                |     | 0    | Nov               | sum  | 9                 | 0.45 |
| 24                |     | 0    |                   |      | 10                | 0.5  |
| 25                |     | 0.3  | 1                 | 0.5  | 11                | 0.07 |
| 26                |     | 0    | 2                 | 0.13 | 12                | 0.58 |
| 27                |     | 0    | 3                 | 0.01 | 13                | 0.09 |
| 28                |     | 0    | 4                 | 0    | 14                | 0.06 |
| 29                |     | 0    | 5                 | 0.03 | 15                | 0    |
| 30                |     | 0    | 6                 | 0    | 16                | 0.11 |
| 2015 Precip. (in) |     |      | 7                 | 0.17 | 17                | 0.97 |
| Oct               | sum |      | 8                 | 0.23 | 18                | 0.78 |
|                   |     |      | 9                 | 0.03 | 19                | 0.07 |
| 1                 |     | 0    | 10                | 0.01 | 20                | 0.13 |
| 2                 |     | 0.04 | 11                | 0.16 | 21                | 0.99 |
| 3                 |     | 0.04 | 12                | 0.13 | 22                | 0.3  |
| 4                 |     | 0    | 13                | 1.28 | 23                | 0.29 |
| 5                 |     | 0    | 14                | 1.96 | 24                | 0.17 |
| 6                 |     | 0    | 15                | 0.63 | 25                | 0.05 |
| 7                 |     | 0.29 | 16                | 0.19 | 26                | 0    |
| 8                 |     | 0    | 17                | 1.26 | 27                | 0.29 |



# Precipitation Data

28 0.03  
29 0  
30 0  
31 0

3 0.27  
4 0.24  
5 0.21  
6 0.21  
7 0

14 0.6  
15 0.01  
16 0  
17 0.16  
18 0

## 2016 Precip. (in)

Jan sum

1 0  
2 0  
3 0.01  
4 0.32  
5 0.16  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0.1  
12 0.31  
13 0.46  
14 0  
15 0.09  
16 0.34  
17 0.28  
18 0.04  
19 0.36  
20 0.44  
21 0.68  
22 0.18  
23 0.77  
24 0  
25 0  
26 0.04  
27 0.5  
28 0.68  
29 0.24  
30 0.12  
31 0.02

## 2016 Precip. (in)

Feb sum

1 0  
2 0.02

8 0  
9 0  
10 0.04  
11 0.48  
12 0.34

13 0.5  
14 0.22  
15 0.1  
16 0.07  
17 0.39

18 0.1  
19 0.35  
20 0.1  
21 0.14  
22 0.15

23 0  
24 0  
25 0  
26 0.2  
27 0.36

28 0.57  
29 0.12

## 2016 Precip. (in)

Mar sum

1 0.79  
2 0.2  
3 0.02  
4 0.13  
5 0.12  
6 0.16  
7 0.26  
8 0.17  
9 0.63  
10 0.27  
11 0.28  
12 0.19  
13 0.31

19 0.02  
20 0.16  
21 0.22  
22 0.03  
23 0.23

24 0.32  
25 0  
26 0.15  
27 0.02  
28 0

29 0  
30 0  
31 0

## 2016 Precip. (in)

Apr sum

1 0  
2 0  
3 0.15  
4 0.16  
5 0  
6 0  
7 0  
8 0  
9 0  
10 0  
11 0  
12 0.49  
13 0.03  
14 0.26  
15 0  
16 0  
17 0  
18 0  
19 0  
20 0.02  
21 0.01  
22 0.2

Weather History for McChord Air Force Base

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### Precipitation Data

|                   |      |                   |                   |                   |      |
|-------------------|------|-------------------|-------------------|-------------------|------|
| 23                | 0.15 |                   |                   | 8                 | 0.19 |
| 24                | 0.35 |                   | 2016 Precip. (in) | 9                 | 0.1  |
| 25                | 0.01 |                   | Jun sum           | 10                | 0.01 |
| 26                | 0    |                   | 1 0.03            | 11                | 0    |
| 27                | 0    |                   | 2 0.04            | 12                | 0    |
| 28                | 0    |                   | 3 0               | 13                | 0    |
| 29                | 0.01 |                   | 4 0               | 14                | 0    |
|                   | 0    |                   | 5 0               | 15                | 0    |
| 30                | 0    |                   | 6 0               | 16                | 0    |
|                   |      |                   | 7 0               | 17                | 0    |
| 2016 Precip. (in) |      |                   | 8 0               | 18                | 0    |
| May sum           |      |                   | 9 0.07            | 19                | 0    |
| 1 0               |      |                   | 10 0.33           | 20                | 0    |
| 2 0               |      |                   | 11 0.06           | 21                | 0    |
| 3 0               |      |                   | 12 0              | 22                | 0.19 |
| 4 0               |      |                   | 13 0.02           | 23                | 0    |
| 5 0               |      |                   | 14 0.38           | 24                | 0    |
| 6 0               |      |                   | 15 0.16           | 25                | 0    |
| 7 0               |      |                   | 16 0              | 26                | 0    |
| 8 0               |      |                   | 17 0.13           | 27                | 0    |
| 9 0               |      |                   | 18 0.03           | 28                | 0    |
| 10 0              |      |                   | 19 0              | 29                | 0    |
| 11 0              |      |                   | 20 0.46           | 30                | 0    |
| 12 0.08           |      |                   | 21 0              |                   | 0    |
| 13 0              |      |                   | 22 0              | 31                |      |
| 14 0              |      |                   | 23 0.22           |                   |      |
| 15 0.04           |      |                   | 24 0.02           | 2016 Precip. (in) |      |
| 16 0              |      |                   | 25 0              | Aug sum           |      |
| 17 0              |      |                   | 26 0              | 1 0               |      |
| 18 0              |      |                   | 27 0              | 2 0               |      |
| 19 0.02           |      |                   | 28 0              | 3 0               |      |
| 20 0              |      |                   | 29 0              | 4 0               |      |
| 21 0.31           |      |                   |                   | 5 0               |      |
| 22 0.12           |      |                   | 30 0              | 6 0               |      |
| 23 0              |      |                   |                   | 7 0.12            |      |
| 24 0              |      | 2016 Precip. (in) |                   | 8 0.03            |      |
| 25 0              |      | Jul sum           |                   | 9 0               |      |
| 26 0              |      | 1 0               |                   | 10 0              |      |
| 27 0              |      | 2 0               |                   | 11 0              |      |
| 28 0.05           |      | 3 0               |                   | 12 0              |      |
| 29 0.04           |      | 4 0               |                   | 13 0              |      |
| 30 0              |      | 5 0               |                   | 14 0              |      |
|                   |      | 6 0               |                   | 15 0              |      |
| 31 0              |      | 7 0.12            |                   |                   |      |

# Precipitation Data

|      |              |      |              |
|------|--------------|------|--------------|
| 16   | 0            | 26   | 0            |
| 17   | 0            | 27   | 0.08         |
| 18   | 0            | 28   | 0            |
| 19   | 0            | 29   | 0            |
| 20   | 0            | 30   | 0            |
| 21   | 0            | 2016 | Precip. (in) |
| 22   | 0            | Oct  | sum          |
| 23   | 0            | 1    | 0.03         |
| 24   | 0            | 2    | 0.13         |
| 25   | 0            | 3    | 0.05         |
| 26   | 0            | 4    | 0.09         |
| 27   | 0            | 5    | 0.11         |
| 28   | 0            | 6    | 0.15         |
| 29   | 0            | 7    | 0.16         |
| 30   | 0            | 8    | 0.19         |
| 31   | 0.04         | 9    | 0.27         |
| 2016 | Precip. (in) | 10   | 0.01         |
| Sep  | sum          | 11   | 0            |
| 1    | 0.11         | 12   | 0            |
| 2    | 0.25         | 13   | 1.59         |
| 3    | 0            | 14   | 0.93         |
| 4    | 0            | 15   | 0.93         |
| 5    | 0.02         | 16   | 0.45         |
| 6    | 0.37         | 17   | 0.29         |
| 7    | 0.01         | 18   | 0.33         |
| 8    | 0.01         | 19   | 0.18         |
| 9    | 0            | 20   | 0.79         |
| 10   | 0            | 21   | 0.28         |
| 11   | 0            | 22   | 0.02         |
| 12   | 0            | 23   | 0.07         |
| 13   | 0            | 24   | 0.08         |
| 14   | 0            | 25   | 0.03         |
| 15   | 0            | 26   | 1.55         |
| 16   | 0            | 27   | 0            |
| 17   | 0.42         | 28   | 0.01         |
| 18   | 0            | 29   | 0.11         |
| 19   | 0.14         | 30   | 0.25         |
| 20   | 0            | 31   | 0.58         |
| 21   | 0            | 2016 | Precip. (in) |
| 22   | 0            | Nov  | sum          |
| 23   | 0.03         | 1    | 0.12         |
| 24   | 0            | 2    | 0.21         |
| 25   | 0            |      |              |

